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Progress in the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States

Report of the Secretary-General

Addendum

Land resources in small island developing States*

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I. Introduction

1. Small island countries vary enormously according to distinct geographic, biological, social, cultural, and economic characteristics but share many common disadvantages which constrain their efforts to develop and conserve their environments, including limited natural resources and limited prospects for agricultural development and food security; vulnerability to natural hazards, such as cyclones, volcanic eruptions, earthquakes and climate extremes; fragility of ecosystems, with high species endemism and potential for loss of biological diversity (including agro-biodiversity); risk of long-term damage from rising sea levels associated with global climate change; declining prospects for traditional agricultural export commodities; susceptibility to introduced pest infestations, erosion and pollution; population pressures; inappropriate tourism development; difficulty in retaining skilled human resources due to lack of opportunity; extreme dependence on and vulnerability to external economic factors; and high costs of transport and communications. Many of these disadvantages hinder the achievement of the sustainable management of land resources, and several are dealt with directly in other parts of the report of the Secretary-General on the implementation of the Programme of Action for the Sustainable Development of Small Island Developing States (see E/CN.17/1999/6 and addenda).

2. Because of their strictly circumscribed resources, the interactions between the human dimensions (population, demographics, land tenure, livelihoods etc.) and the biophysical aspects of land resources (soil types, relief, climatic variation) are of central importance for sustainable development. Beyond this, a better understanding of the interactions among the sectors and land uses of agriculture, forestry, aquaculture, nature conservation, coastal protection, fisheries, tourism, industry, mining and human settlements will be necessary for appropriate decision-making. The competing demands on land resources must be resolved, and more effective and sustainable ways of using these resources must be developed and adopted. In paragraph 30 of the Programme of Action, Governments recognize that most aspects of environmental management in small island developing States are directly dependent on or influenced by the planning and utilization of land resources, which in turn are intimately linked to coastal zone management and protection in those States. Mechanisms for an integrated planning and management of land resources, including inland and coastal areas, are of great urgency and importance in small island developing States.

II. Land resources issues

3. Human settlements, agriculture, commerce, industry and tourism development have historically been the major competing uses for limited land resources in many small island developing States. Conflicts in allocation and appropriate use continue to increase as human needs and population expand at faster rates, producing greater pressure on finite land mass and natural resources.

4. Multiple factors and casual relationships influence the management of land resources: high population pressure on a limited land area, as well as limited frontier or reserve areas for migration; deforestation due to unsustainable commercial logging or conversion to agricultural or grazing uses; soil erosion, in particular on sloping land, soil fertility decline and subsequent downstream degradation; loss of biological diversity, including agro-biodiversity; intensification of agricultural areas, specifically in coastal lowlands; the influence of tourism on fragile coast areas; and intensive use of sea resources. Small island developing States are also highly vulnerable to natural catastrophes and environmental disasters, including changes associated with sea level rise issuing from climatic conditions.

5. Increased demands for cash income have led to greater production of export cash crops and inappropriate tourism development. For agriculture, this has meant increasing areas of cultivation and more mechanized production systems. Land pressures in some small island developing States have recently become further aggravated by the intensification of animal production, particularly high input production chains which are dependent on concentrate feed. Unsustainable agricultural practices have contributed to deforestation; changes in cropping pattern and subsequent losses of biodiversity across the landscape; loss of soil fertility; and agrochemical pollution of soils, freshwater and coastal resources downstream.

6. Furthermore, land tenure and other policy issues critically affect land management, as do multiple socio-economic factors, including trade and the influence of outside markets, traditional and cultural practices, and demographics. Because of the diversity in natural and human conditions, small island developing States do not generally exhibit common land tenure problems. The main exceptions are limited access due to land/resource scarcity and associated conflicts, the impact of skilled human resource out-migration on the regular maintenance of cadasters, land registries and records, and the constraints of poor transport and communications infrastructure on the implementation of land tenure legislation. One common tenure action,

undertaken by many small island developing States to relieve the problem of land/resource scarcity, has been the trend to extend marine territorial boundaries beyond the previous three-mile limit.

7. National decisions and the capacity to manage land resources sustainably can also be constrained by external factors and the impacts of inappropriate development strategies pursued in the past, including unequal negotiations for rights to exploit natural resources by national and foreign companies, and poorly designed projects financed by donors which have been based on purely economic considerations. As a result, many Pacific small island developing States, for example, have pursued new industrial development, targeting export growth in agriculture, forestry and tourism without adequately taking into account social and environmental costs. The pressure to which land resources have been subjected by these development efforts and the substantial and sometimes disastrous degradation and depletion which has occurred have begun to focus the attention of communities on the need to implement sustainable management of those remaining resources.

8. Cause and effect relationships and issues of land resources are not limited to and cannot be resolved by only addressing biophysical characteristics and constraints. The complexity of issues calls for an integrated and participatory approach, requiring interdisciplinary, intersectoral, and multi-institutional efforts. Small island developing States rarely have an extensive and stable cadre of professional expertise, resulting in multiple tasking of few individuals. For this reason, the availability of information on land resources and appropriate tools, guidelines and technologies for their utilization are of the utmost importance for implementing sustainable land use options and informing policy decisions. To design policies on land resources in these small island developing States, information is needed on optimal resource use, trade-offs between sectors and the availability of environmentally sound technologies.

9. Efforts have been undertaken to address the key issues identified in the Barbados Declaration by multiple stakeholders, including international agencies, national Governments, international, national and local non-governmental organizations, and communities. Regional efforts supported by these different stakeholders have been successful in coordinating collective needs, strategies and information flow. A limited list of examples of efforts in addressing the issues is set out below.

III. Actions taken to address issues

A. Information systems, integrated land resources planning and management

10. The World Bank, the Inter-American Development Bank, the Caribbean Development Bank, the United States Agency for International Development (USAID), the Canadian International Development Agency and the Food and Agriculture Organization of the United Nations (FAO) have funded projects in several small island developing States for the preparation of policy instruments, environmental impact assessments, guidelines and draft legislation for several aspects of resource surveys and assessments, land use planning and management, institutional strengthening, watershed and protected areas management. The Department of Economic and Social Affairs of the United Nations Secretariat and the United Nations Centre for Human Settlements (Habitat) have been assisting small island developing States in the Caribbean, with United Nations Development Programme (UNDP) financing, with the development and expansion of computer-based geographical information systems (GIS). Regional training needs have been assessed and a programme of assistance formulated. One output of a ministerial meeting in Barbados in 1995 was the establishment of a task force comprising Barbados, Jamaica, Saint Vincent and the Grenadines, the Organization of Eastern Caribbean States (OECS) and Habitat to initiate a harmonized regional database. In addition, institutional strengthening and capacity-building measures have been undertaken at the national level in many countries, with the support and assistance of Habitat/UNDP. These include technical cooperation programme initiatives, fellowships and in-service training. OECS has been sensitizing national Governments on the concept of island systems management. This approach recognizes the need for a holistic approach to the use of island resources. It seeks to eliminate sectoral boundaries through the establishment of a multisectoral, multidisciplinary mechanism, which links a partnership arrangement of public and private sectors, non-governmental organizations and community-based organizations in a decision-making process.

11. FAO is promoting an improved approach to land resources management based upon successful experiences, as well as existing approaches developed by other institutions. The improved approach emphasizes the integration of physical, socio-economic and institutional aspects of land use, and stresses the need for the active

participation of all stakeholders in decision-making. Although not specifically developed for small island developing States, this approach is highly appropriate. FAO has developed frameworks and guidelines for the implementation of the approach, including documents entitled "Our land our future: a new approach to land use planning and management" (1996); "Negotiating a sustainable future for the land, structural and institutional guidelines on natural resource management in the twenty-first century" (1997); and "The future of our land: facing the challenge, guidelines for integrated planning for sustainable management of land resources" (1998).

12. Specific small island developing States-associated projects have been completed in Grenada to assist decision makers and land users in sustainable planning and management of the country's land resources. A critical component of these activities is the development of a national computerized land information system to increase the effectiveness of planning and implementation of development programmes, as well as to address the needs of multiple agencies. The system incorporates a comprehensive GIS database. Land use planning, management and information systems workshops for Caribbean countries have been held in Grenada, resulting in the development of agro-ecological zoning and land use planning guidelines. Similar efforts have been made in Trinidad and Tobago, Saint Lucia and Belize. The Export Development and Agricultural Diversification Unit of the Organization of Eastern Caribbean States has requested FAO assistance in developing a land use planning and agricultural production zoning mechanism for OECS. Information and corporate software has been distributed to institutions working on land use characterizations and classification in Fiji, Tonga and Vanuatu.

13. In the South Pacific small island developing States, the dissemination of information and feedback of views on a new approach towards planning for sustainable use of land resources is continuing, consistent with priorities for implementing integrated approaches to resource management identified within the framework of national environment management strategies. An inventory of land resource information systems has been compiled for the subregion to assess the comprehensiveness of thematic data coverage and to evaluate their adequacy for land resource planning purposes. In Fiji, a project was designed to develop a strategy and decision support system for an integrated approach to land resources planning and management. Reports of similar assistance have been received from the Solomon Islands and Samoa, the latter awaiting approval of a new land use policy. A project is being prepared to undertake a comprehensive assessment on the magnitude of land degradation and its effects on the people and food security of island countries in the subregion, consistent with guidelines and methodologies used in South-East Asia. The International Institute for Environment and Development (IIED) documented a strategic approach to island development, drawing on the experiences of IIED, the World Bank and the World Conservation Union (IUCN) in a document entitled "Small island States and sustainable development: strategic issues and experience".

B. Farming systems and soil management

14. The farming systems approach to development is considered to be potentially useful in improving planning and analytical capacity in identifying, developing and implementing ways to improve the productivity — and therefore welfare — of those involved in agriculture in a manner that is equitable and sustainable. As a result, FAO is now working with the Institute of Research and Extension Training in Agriculture of the University of the South Pacific in Samoa to implement training sessions on the farming systems approach and to produce regionally specific training and extension materials. Seven countries in the South Pacific were associated with the project — the Cook Islands, Fiji, Papua New Guinea, Tonga, Solomon Islands, Vanuatu and Samoa. Outputs included documents entitled "An introduction to the farming systems development for the South Pacific" and "The farming systems approach to sustainable agriculture development in the South Pacific". Recommendations to institutionalize the farming systems approach into national programmes, build further awareness of this approach and train extensionists in the methodology have been the result of these successful programmes.

15. Sustainable land stabilization and soil conservation programmes have been undertaken within the broader framework of the protection and enhancement of the fragile island environment. A soil erosion control programme was formulated in Jamaica. In Samoa, the preparation of the World Overview of Conservation Technologies initiative has been completed. In Barbados, a development programme has been formulated for the stabilization and conservation of the scarce and highly erosion-prone arable lands in the Scotland District and the general rehabilitation of agriculture in the area. Training efforts and strengthening human resource capacity within the local soil conservation unit have been undertaken. The work resulted in a policy entitled "A new framework for conservation-effective land management and desertification control in Latin America and the Caribbean".

Sponsored by the Fertilizer Advisory Development Information Network for Asia and Pacific, a subregional workshop on environmentally sound fertilization in the Pacific islands was held in Samoa. Work will soon commence on compiling available information on soil and plant nutrition in selected countries (Fiji, Samoa, Tonga) for preparing profiles on integrated plant nutrition systems before developing national soil fertility management strategies, in particular for low islands and atoll countries in the subregion. Many of the Pacific island countries have embraced a policy entitled "Framework for action on the conservation of lands in Asia and the Pacific". Among the collaborators were the International Board on Soil Resources and Management (IBSRAM) Pacificland Network and the European Union-funded Pacific Regional Agriculture Programme. Through the Pacific Land Network, the issues related to steep lands and land intensification are being addressed in Fiji, Papua New Guinea, Vanuatu and Samoa. The work is seeking to assess the extent of the problems of land degradation, and to develop acceptable technologies for sustainable agriculture based on existing systems and local technical knowledge.

C. Forestry

16. A number of initiatives have been undertaken at the national and regional levels, with the support and involvement of the donor community, including agencies, funds and programmes of the United Nations system. FAO, with UNDP, convened a regional meeting in Barbados in September 1997 to discuss a strategy for supporting the establishment of national forestry policies in Caribbean small island developing States. Work is ongoing as a result of the meeting for elaborating such policies in a number of Caribbean small island development States, with technical support from FAO. In addition, the UNDP Forest Capacity-Building Programme is currently supporting initiatives for the development of national forestry action plans. A project for Jamaica has been most recently approved by the UNDP Capacity 21 Management Committee. Watershed management and conservation education projects, as in Samoa, integrate conservation farming systems and agroforestry practices in addressing the interrelationship of upstream-downstream aspects. Financial assistance and advisory technical services were provided to support a working group on agroforestry for the Pacific to document the wealth of indigenous and technical knowledge and experience associated with such systems. The agroforestry information toolkit, prepared at a regional participatory workshop in Fiji in 1997, targets extension level personnel, and will be published as a joint effort of, *inter alia*, FAO, IBSRAM, UNICEF and 60 national resource persons.

17. The three-year Pacific Islands Forests and Tree Support Programme is assisting the 22 Pacific island countries and territories in strengthening national and community capacities in the use, management, conservation and development of their forest and tree resources on a sound and sustainable basis. The emphasis of the programme will be to support national and community initiatives that will create employment opportunities and enhance the sustainable livelihoods of their people. It will provide technical, training and other support to national and local economies. FAO assistance has been requested for a regional watershed management project for the Cook Islands, Fiji, Tonga and Samoa. The Government of Fiji has also requested FAO assistance to carry out a review of the return to resource owners and government from forests and forest products harvesting, processing and marketing. FAO assistance was provided through a European Union-funded regional project on forestry policies in the Caribbean in the analysing of forestry policy in 28 Caribbean countries and territories, and the identification of opportunities for institution-strengthening and strengthening forestry policy analysis capacity.

D. Water resources

18. FAO activities in Fiji addressed sedimentation control, flood mitigation, river improvement and watershed management. Dredging activities in the main rivers in Fiji resulted in an improvement of poorly drained and underutilized land, and led to an agricultural development programme for an area of 6,300 hectares in the Central Division. A subsequent project identified the major causes for erosion and the high sedimentation of the Rewa River, and elaborated a detailed programme combining legal aspects, flood control, river regulation and appropriate land management practices for sustainable development of agricultural lands. There was also a project to increase food production through expansion of arable land by reducing flood risks and improving the drainage capacity of the major rivers. A water resources assessment was commissioned in February 1997 to provide technical options for introducing small-scale low-cost supplementary irrigation and water control schemes into rainfed cropping sites of the FAO Special Programme for Food Security in Papua New Guinea. This is a multidisciplinary project, which is also doing an analysis of socio-economic constraints. Elsewhere in the region (Samoa, Solomon Islands), assistance is planned to

identify water control components in conjunction with new project preparation exercises linked to expansion of the activities of the FAO Special Programme for Food Security.

E. Natural areas protection and coastal area management

19. A number of small island developing States are beginning to develop innovative programmes to save their forests and coral reefs. These programmes mean that island peoples can still use their forests and reefs as a traditional source for food, fish, renewable wood products and the sustainable harvesting of the majority of species of plants in the forests that are not trees. Saint Kitts and Nevis, and Aruba have planned the expansion of protected areas. In 1998, FAO issued a document entitled "Guidelines on integrated coastal area management and agriculture, forestry and fisheries", applicable in large measure to small island developing States. It includes a section on the issues, perspectives, policy and planning process for integrated coastal area management, as well as more specific advice on integrating agriculture, forestry and fisheries into coastal area management, and on conflict resolution.

F. Participatory research and development

20. A USAID-funded programme brought universities, national programmes, non-governmental organizations and farmers together. The two-year programme resulted in changes in the national agricultural research system of Cape Verde, including the establishment of an institutional framework for long-term research planning; establishing a participatory monitoring and evaluation programme; maintaining and promoting highly trained, quality researchers; establishment of inter-institutional collaboration and implementation of interdisciplinary research; establishing and maintaining linkages with farmers and the extension service; and conducting on-farm research.

G. Natural disasters

21. An important consideration in the use of land resources is to identify the susceptibility of specific land areas to the impact of natural disasters. The office of disaster preparedness in Jamaica undertook one of the first efforts at natural hazard mapping in the Caribbean. The Organization of American States, with financial support of USAID, carried out landslide hazard assessment in the OECS countries, and is continuing with coastal storm surge hazard assessment, in conjunction with the Caribbean Meteorological Institute. The Government of Jamaica has recently adopted new guidelines for land use planning, which calls for special zoning regulations. The Caribbean Disaster Emergency Response Agency, in conjunction with FAO, is working with Eastern Caribbean States in developing the details of national and regional hurricane disaster preparedness, and impact mitigation strategies related to agriculture, forestry and fisheries. Components include a review of environment for information management in the sector, sector hurricane preparedness and mitigation action plans, and public education and awareness.

22. FAO on-site advice and support assisted Tonga in gaining emergency assistance (fertilizers and seeds) following cyclone Hina in March 1997, which severely disrupted household food supplies. Also, assistance was given to the Bahamas to recover from hurricane Lili (1997–1998), to the Dominican Republic in response to the effects of El Niño (1998) and to Seychelles for flood mitigation (1998). Given the exposure of the Pacific subregion to tropical cyclones and drought and their consequent effects on food supply, a subregional project is being prepared with extrabudgetary funding to assist member countries in developing standard methodologies and approaches towards crop assessment and reporting. To date, Fiji, Papua New Guinea and Tonga have expressed support for this proposal.

H. Physical planning and development

23. A number of initiatives have been pursued at the national and regional levels with the support of agencies, including Habitat/UNDP, the Organization of American States and the Caribbean Disaster Mitigation Project. Technical assistance to physical planning units has been supplied for the preparation of physical development plans, and for institutional strengthening through training of personnel and provision of GIS equipment. The initiatives include the preparation of building codes and guidelines, planning and infrastructure standards, physical planning legislation, national physical development plans, and housing and land management policies.

IV. Conclusions and recommendation for future action

A. National and local levels

24. Critical areas to better address land resources include the need to better understand land use objectives and land user options; the need for institutional collaboration and coordination of ministries; the need to implement land dispute resolution systems; the need to use technologies as a basis for land use decision-making; and the need to address public education regarding land management. Sustainable land management will call for:

(a) Information. In a general sense, this will entail removing constraints, providing incentives and developing improved technologies; creating institutional arrangements for involving all stakeholders in management and decision-making; establishing efficient and effective land resources management through the activities of a network of groups; creating information systems accessible to all; and providing information and technical support for decision-making;

(b) Collaboration. Institutionally, there is a need to take an intersectoral approach to addressing the complex issues of land resources. This will entail the adoption of an integrated planning process, with enhanced collaboration on the part of different government agencies, universities, non-governmental organizations, community groups and others to optimize and utilize the comparative advantage of each;

(c) Integrated approaches. Numerous tools, approaches, techniques and guidelines have been developed which small island developing States can take advantage of to address issues of land resources. Tools and approaches and capacity-building activities should encourage a participatory approach. This should engage all stakeholders in the planning design, and implementation of practices and policies to address land resources, and should act as a platform to share ideas. These include approaches to land planning and management, negotiation and conflict management, information and decision support systems, island systems management and farming systems approaches. Training in the use and institutionalization of these tools, approaches and guidelines should be undertaken;

(d) Environmental awareness. Natural resource conservation should be strongly promoted by making people aware of the fragile and finite nature of these resources in today's conditions; promoting diversification; attempting to rehabilitate traditional attitudes and value systems and using community-based approaches to resource use; and making communities fully responsible for managing them.

B. Regional level

Expertise and communications

25. Relevant regional bodies should be strengthened and the exchange of technology, expertise and ideas should be promoted. Mechanisms must be put in place to enhance communication networks which have been developed, as well as to develop those which are still needed. Recognizing the complexity and diversity of the natural resource management task, and the difficulty and financial burden associated with the provision of the required multidisciplinary teams of professionals in each country, the establishment of an appropriate regional mechanism within one of the existing regional organizations might be considered. This mechanism would provide resource management services to small island Governments, make available skills and experience which would be much more difficult to build at the national level, and facilitate the transfer and sharing of technical information and research results.

Coordination

26. Effective coordination between regional institutions, universities and other relevant programmes or initiatives should be encouraged on measures designed to establish an integrated approach to the planning and management of land resources.

C. International level

Facilitation and coordination

27. International agencies must better coordinate their efforts in assistance to small island developing States. They should assist in the strengthening and support of regional networks. Agencies should facilitate the adoption and implementation of appropriate integrated planning processes for natural resources as a means of ensuring their sustainable use.

Technical assistance

28. Technical assistance should be provided:

(a) In support of information systems for effective decision-making regarding land resources by appropriate agencies, and in support of promoting networks involving

users and decision makers at the regional and national levels for the development of information systems, so as to ensure access to data and information of small island developing States;

(b) In establishing systems for monitoring land and water resources and preparing periodic reports on the state of the land and water resources in small island developing States to be used for prospective studies and policy decisions by small island developing States. Such reports should highlight trends in land and water resources;

(c) To assess and revise, if needed, national legislation, implement appropriate training, and enhance database development and its application for integrated land use planning and management.